

Process Models of the Equilibrium Size and State of Organic/ Inorganic Aerosols, for the Development of Large Scale Atmospheric Models and the Analysis of Field Data

A new ASP project

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Objectives

1. Fundamental thermodynamic tools for internally mixed aerosols

2. Detailed SOA module.

3. Include in web-based *Extended Aerosol Inorganics Model*

4. Computationally efficient module for urban, regional and global models

Objectives

1. Fundamental thermodynamic tools for internally mixed aerosols

Inorganics

- unified, stratosphere → lower troposphere
- most accurate
- acid ammonium sulphate, sea salt, wind-blown dust

Mixed inorganic/organic aerosols

- methods for estimating properties, based on existing inorganic and organic models.
- flexible on physical nature of aerosol, suitable for models on different scales.

Objectives

2. Detailed SOA module.

- construct using key SOA components and/or lumped properties
- use results of experiments with PNNL, data from CIT and from the literature

Objectives

- implement the detailed SOA module in the web-based model.
- free access, users can modify the module, and define their own systems.

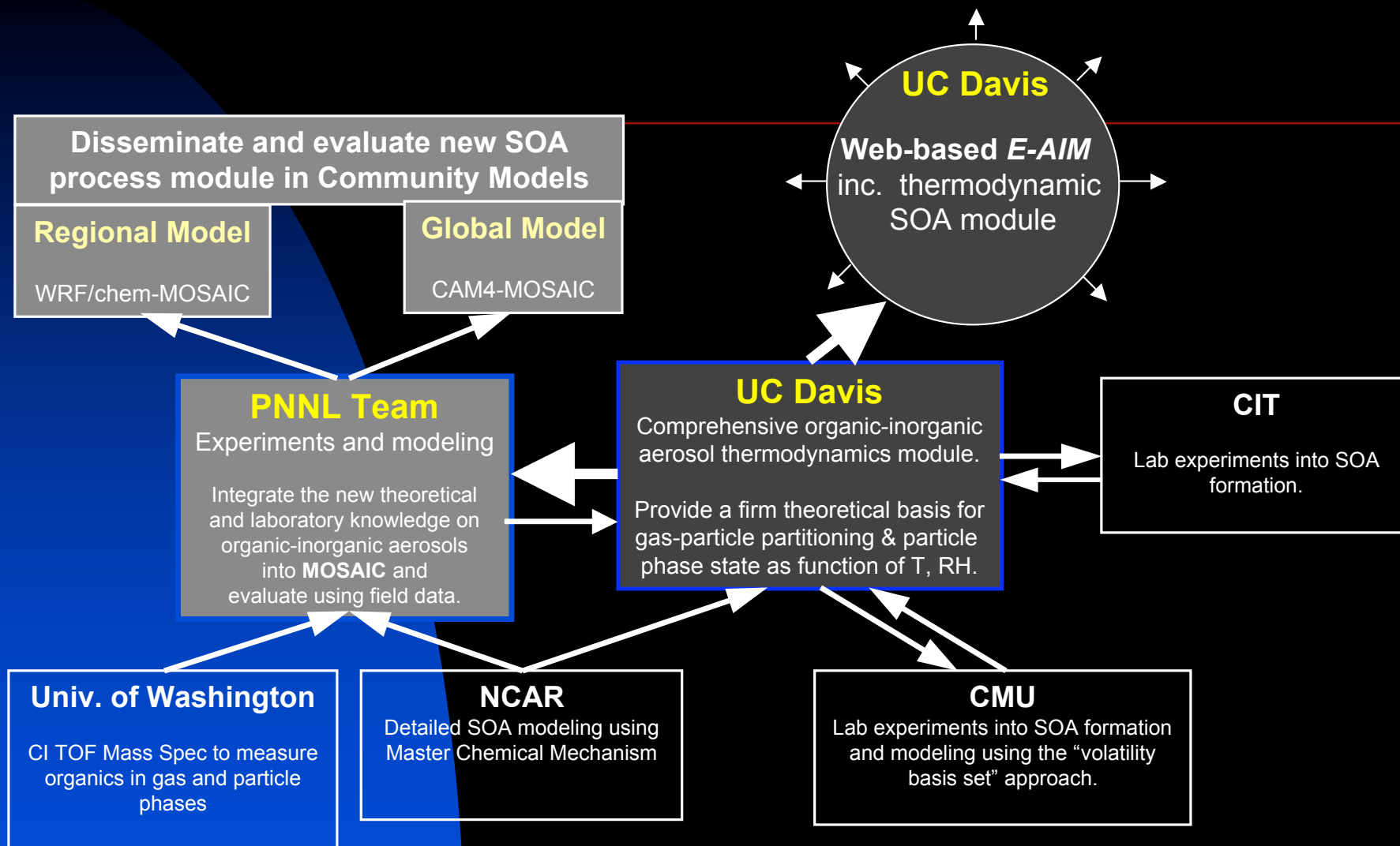
3. Include in web-based *Extended Aerosol Inorganics Model*

Objectives

- with PNNL, implement an efficient SOA module in MOSAIC.
- extend the MTEM inorganic module in MOSAIC (which is already based upon our work).

4. Computationally efficient module for urban, regional and global models

Integration with ASP



Inputs from Other Projects

- *Quantifying the effects of aerosols on climate, and their behaviour in the atmosphere (NERC).*
- *Improving Aerosol-Chemical Effects on Radiative Forcing in Climate Models (NOAA).*